

SECTION 01010**SUMMARY OF WORK****PART 1 – GENERAL****1.01 THE REQUIREMENT**

- A. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The work shall be complete, and all work, materials, and services not expressly shown or called for in the Contract documents which may be necessary for the complete and proper construction of the work in good faith shall be performed, furnished, and installed by the CONTRACTOR as though originally so specified or shown, at no increase in cost to the CITY.
- B. Prior to construction, the CONTRACTOR shall verify existing utilities identified on the Drawings and locate other potential utilities in their working area that may not be shown on the Drawings. The utility verifications consist of excavation to locate potential conflicts that may affect the work as shown on the Drawings. The CONTRACTOR shall be responsible for the coordination of this work with the associated utility owners and permitting agencies having jurisdiction over the specific locations to be verified. The contractor shall coordinate with the utility owners to relocate any utilities identified for relocation or need relocation for the construction of the project.

1.02 SCOPE

- A. The work to be performed includes earthwork associated with the canal dredging and filling, canal bank restoration, and site civil work associated with the Schaffer Canal Restoration Project in the City of Hallandale Beach. The improvements are intended to improve channel hydraulics. The canal right-of-way varies with width as small as ± 30 feet but is generally 50 to 65 feet wide on average. Construction buffers at the top of banks are to be maintained as far as possible on both sides of the canal, however, previous side slopes cuts close to the right-of-way lines do restrict the buffer zone in some areas. The targeted canal depth is $\pm (-)10.0$ feet.

This project consists of furnishing all tools, equipment, materials, supplies, labor, work, or other operations required to clear, cart away deleterious canal material, dredge, and fill, to the lines and elevations shown on the engineering plans, and to restore the canal banks and landscaping for the fulfillment of the Contract in strict accordance with the Contract Documents. The project includes preparation and submittal of shop drawings and record drawings, testing, and other restorations incidental to the canal dredging and filling.

Work shall be performed to ensure continuous operation and appropriate performance of all existing water, sewer, stormwater and franchise utilities

systems, to minimize impacts to roadway traffic, parking, and residents and businesses and shall be coordinated with the City in advance.

- B. It is the intent of the CITY to obtain a complete and working installation under this contract and any items of labor, materials or equipment, which may reasonably be assumed as necessary to accomplish this end, should be supplied whether or not specifically shown on the plans or described herein. Maintenance of the existing utility systems is mandated throughout the construction period.

1.03 WORK BY OTHERS

- A. The CONTRACTOR shall cooperate fully with all utility forces of the CITY, or other public or private agencies engaged in the relocation, altering, or otherwise rearranging any facilities which interfere with the progress of the work, and shall schedule the work so as to minimize interference with said relocation, altering, or rearranging of facilities.

1.04 LOCATION OF THE PROJECT

- A. The canal is located south of Pembroke Road between I-95 and US 1. It lies south of SW 5th Street, east of SE 4th Avenue and north of SW 11th Street in the City. A location map is presented on the cover sheet of the enclosed engineering drawings.

1.05 CONTRACT DRAWINGS

- A. The work to be performed is shown on the set of Contract Drawings entitled "City of Hallandale Beach, Schaffer Canal Restoration". City Project No. P1911.

1.06 CONTRACTOR FURNISHED MATERIAL AND EQUIPMENT

- A. All equipment, materials, or devices incorporated in this project shall be new and unused, unless indicated otherwise in the Contract Documents and shall be the products of reliable manufacturers who, unless otherwise specified, have been regularly engaged in the manufacture of such material and equipment for at least five (5) years. Procedures and additional requirements regarding manufacturer's experience and substitutions are included in Section 01630 - Substitutions and Product Options.

1.07 DRAWINGS OF EXISTING FACILITIES

Drawings of the existing facilities may be inspected at the City's Engineering and Construction Services Office, if available. These drawings are for information only and are not a part of the Contract Documents. In making these drawings available for inspection, the CITY makes no guarantee, either expressed or implied, as to their accuracy or completeness.

- B. The CONTRACTOR shall contact representatives for other utilities, facilities in proximity of the work and Sunshine State One Call Inc., to obtain the as-built information from them directly. The utilities shown on Drawings are based upon

available records supplied from various sources. The CITY makes no guarantee, either expressed or implied, as to their accuracy or completeness.

1.08 ITEMS SPECIFIED ON DRAWINGS

- A. Certain items of material and/or equipment, and their installation may be specified on the Drawings and not mentioned in the Specifications. Such items are to be considered as both shown on the Drawings and noted in the Specifications and be provided by the CONTRACTOR in accordance with the Specification on the Drawings.

1.09 FIELD LAYOUT OF WORK

- A. All work under this Contract shall be constructed in accordance with the Contract Drawings or as directed by the ENGINEER. Elevations of existing ground, structures and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the data shown or omissions of data required for accurately accomplishing the stake-out survey shall be referred immediately to the ENGINEER for interpretation or correction.
- B. All survey work for construction control purposes shall be made by the CONTRACTOR at his expense.
- C. The CONTRACTOR shall establish all base lines for the location of the principal component parts of the work together with benchmarks and batter boards adjacent to the work. Based upon the information provided by the Contract Drawings, the CONTRACTOR shall develop and make all detail surveys necessary for construction. The CITY will furnish information and location of existing benchmarks.
- D. The CONTRACTOR shall have the responsibility to carefully preserve the benchmarks, reference points and stakes. In case of destruction thereof by the CONTRACTOR or resulting from his negligence, he shall be held liable for any expense and damage resulting therefrom and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.
- E. Existing or new control points, property markers, and monuments that will be established or are destroyed during the normal course of construction shall be re-established by the CONTRACTOR; and all reference ties recorded therefore shall be furnished to the ENGINEER. All computations necessary to establish the exact position of the work shall be made and preserved by the CONTRACTOR.
- F. The ENGINEER may check all or any portion of the work, and the CONTRACTOR shall afford all necessary assistance to the ENGINEER in carrying out such checks. Any necessary corrections to the work shall be performed immediately by the CONTRACTOR and he shall accept all responsibility for the accuracy and completeness of his work.

1.10 ENVIRONMENTAL PROTECTION

- A. The CONTRACTOR shall furnish all labor and equipment and perform all WORK required for the prevention of environmental pollution during and as a result of the WORK under this contract. The CONTRACTOR shall be responsible for preparing and complying with the requirements of the National Pollution Prevention Discharge Elimination System (NPDES) and Storm Water Pollution Prevention Plan (SWPPP), including preparation and submittal of the Notice of Intent (NOI) prior to start of construction. For the purpose of this contract environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants.
- B. The CONTRACTOR shall take all steps necessary to protect water quality in the connected waters around the project and shall utilize such additional measures as directed by the ENGINEER. Silt screens, hay bales, turbidity curtains, or other control measures adjacent to outfall construction shall not be removed until the turbidity of the affected waters is equal to or lower than the ambient turbidity of undisturbed segments of adjacent surface waters.

END OF SECTION

SECTION 01011**SITE CONDITIONS****PART 1 – GENERAL****1.01 GENERAL**

The Contractor is invited to visit the site prior to submittal of his proposal to verify the existing conditions and evaluate the suitability for construction of the project.

The canal is located within a residential area with single family backyards bordering the canal. Access to the canal is limited to three locations where the canal crosses the local roads, S.W. 4th Avenue, S.W. 7th Street and S.W. 9th Street. The Contractor's actions may not interfere with the ability of these roadways to provide continuous, reliable service, except as specifically provided for in these Contractor Documents or as allowed by the Owner and the Engineer.

The Contractor shall be responsible for preparing safe and secure staging and laydown areas that will not interfere with vehicular or pedestrian traffic flow or infringe on private property. The Contractor shall be responsible for all site preparation, improvements, and restoration during the entirety of the project.

1.02 SITE INVESTIGATION AND REPRESENTATION

The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, uncertainties of weather or similar physical conditions of the ground, the character of equipment and facilities needed preliminary to and during execution of the work and all matters which in any way can affect the work or the cost thereof under this contract.

The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by the Owner or included in these Contract Documents. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.

1.03 INFORMATION ON SITE CONDITIONS

All information obtained by the Owner regarding site conditions, topography, subsurface information, groundwater elevations, existing construction of site

facilities as applicable and similar data will be available for inspection at the office of the Engineer upon request. Such information is offered as supplementary information only. Neither the Engineer nor the Owner assumes any responsibility for the completeness or for the Contractor's interpretation of such supplementary information.

A. Subsurface Information

All information regarding subsurface conditions at the project site that the Owner has obtained, may be examined by all prospective bidders prior to the receipt of proposals. Appointment for examination of such information shall be made with the Engineer. Boring Logs are appended to the Specifications.

B. Bidder's Subsurface Investigation

Prospective bidders are invited, at their own expense, to make such additional subsurface investigation by boring or test pit excavation as may be desired, provided however, that such work be scheduled by appointment with the Engineer.

C. Differing Subsurface Conditions

In the event subsurface or latent physical conditions are found materially different from those indicated in these Documents and differing materially from those ordinarily encountered and generally recognized as inherent in the character of work covered in these Contract Documents, the Contractor shall promptly and before such conditions are disturbed, notify the Engineer in writing of such changed conditions.

The Engineer will investigate such conditions promptly and following this investigation, the Contractor shall proceed with the work unless otherwise instructed by the Engineer. If the Engineer finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for performing the work, the Engineer will recommend to the Owner the amount of adjustment in cost and time he considers reasonable. The Owner will make the final decision on all Change Orders to the Contract regarding any adjustment in cost or time for completion.

D. Existing Utilities

Known utilities and structures adjacent to or encountered in the work are shown on the drawings. The locations shown are taken from existing records and the best information available from existing utility plans; however, it is expected that there may be some discrepancies

and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either the Owner or the Engineer for their accuracy or completeness. Any additional costs incurred for idle time of equipment or labor as a result of uncovering unknown utilities shall be for the Contractor's account.

E. Contractor's Responsibility For Utility, Properties And Service

Where the Contractor's operations could cause damage or inconvenience to fiber optic communications, telephone, television, power, oil, gas, storm drainage, water, sewer or irrigation systems, the Contractor shall make all arrangements necessary for the protection of these utilities and services.

The Contractor shall notify Florida Sunshine – One Call 1-800-432-4770 to arrange for underground utility locations and mark out at least 48 hours prior to beginning and excavations or other underground work, as required by law.

The Contractor shall notify all utility officers that are affected by the construction operation at least forty-eight (48) hours in advance. Under no circumstance shall any utilities be exposed without first notifying the appropriate agency. After the appropriate notice, the existing underground utilities may be located, exposed and temporary support of such utilities shall be provided.

The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.

Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.

In the event of interruption to domestic water, sewer, storm drain or other utility services as a result of accidental breakage due to construction operations, the Contractor shall promptly notify the Owner of the utility and cooperate with the Owner in restoration of service as promptly as possible and bear all costs of repair. In no event shall interruption of any utility service be allowed outside working hours unless granted by the Owner of the utility.

In the event the Contractor encounters water service lines that interfere with trenching, he may, by obtaining prior approval of the Owner of the

utility, cut the service, dig through and restore the service with similar and equal materials at the Contractor's expense.

The Contractor shall replace, at his own expense, any and all other existing utilities or structures removed or damaged during construction, unless otherwise provided for in the Contract Documents.

F. Interfering Structures

The Contractor shall take necessary precautions to prevent damage to existing structures whether on the surface, aboveground or underground. An attempt has been made to show major structures on the Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented as a guide to avoid possible difficulties.

The Contractor shall protect existing structures from damage, whether or not they lie within the limits of the easements obtained by the Owner. Where existing fences, gates, barns, sheds, buildings or any other structure must be removed to properly carry out the work or are damaged during the work, they shall be restored at the Contractor's expense to their original condition and to the satisfaction of the property owner.

Without additional compensation, the Contractor may remove and replace, in a condition as good as or better than original, any small structures such as fences, mailboxes and signposts that interfere with the Contractor's operations.

G. Field Relocations

During the progress of construction, it is expected that minor relocations of the work will be necessary. Such relocations shall be made only by direction of the Engineer. If existing structures are encountered that will prevent construction as shown, notify the Engineer before continuing with the work in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. If the Contractor fails to notify the Engineer when an existing structure is encountered and proceeds with the work despite this interference, he shall do so at his own risk.

1.04 SURVEYS

Prior to commencing work, the Contractor shall satisfy himself as to the accuracy of all survey or existing site information as indicated on the drawings or specifications. Should the Contractor discover any errors, inaccuracies or omissions in the survey data, he shall immediately notify the

Engineer. The commencing of any of the work by the Contractor shall be held as acceptance by him of the survey data, after which the Contractor shall have no claim against the Owner resulting from alleged errors, inaccuracies or omissions in the survey data.

1.05 EASEMENTS

It shall be the Contractor's responsibility to determine the adequacy of the easement obtained and abide by all requirements and provisions of the easement. The Contractor shall confine his construction operations to within the easement limits or make special arrangements with the OWNER for the additional area required. Any damage to property, either inside or outside the limits of the easement provided by the Owner, shall be the responsibility of the Contractor.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01015

CONTROL OF WORK

PART 1 - GENERAL

1.01 WORK PROGRESS

The Contractor shall construct the Work as shown on the Drawings and shall provide sufficient resources which will ensure the completion of the work within the time stipulated in the Proposal. If at any time such facilities appear to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may request in writing the Contractor provide means to increase the facility's equipment, modify the amount or type of resource and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required, nor for the timely completion of the Work.

1.02 PRIVATE LAND

The Contractor shall not enter or occupy private land outside of canal right-of-way, except by written permission of the property owner.

1.03 WORK LOCATIONS

Work shall be located substantially as indicated on the Drawings, but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing utilities, structures or for other reasons.

1.04 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition equal to or better than existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.
- B. All sidewalks that are disturbed by the Contractor's operations shall be restored to their original condition by the use of similar or better materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the City of Hallandale Beach Engineering Standards.

- C. Along the location of this work all fences, walks, bushes, trees, shrubbery, and other physical features shall be protected and restored in a thoroughly workmanlike manner. Fences and other features removed by the Contractor shall be replaced in the location indicated by the Engineer as soon as conditions permit. All grassy areas beyond the limits of construction, which have been damaged by the Contractor, shall be regraded and sodded.
- D. Trees close to the work shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification of the tree warden. All injuries to bark, trunk, limbs, and roots of trees shall be repaired by dressing, cutting, and painting according to approved methods, using only approved tools and materials.
- E. The protection, removal and replacement of existing physical features along the line of work shall be part of the work under the Contract, and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Table of Unit Prices Form.

1.05 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.
- B. The Contractor shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing pressure mains, water services, drain lines and sewers). Services to the building shall be maintained and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. If, in the opinion of the Engineer, additional permanent relocation of a utility owned by the City is required, he may direct the Contractor, in writing to perform the work. Work so ordered will be paid for at the contract unit prices, if applicable, or as extra work under the General Conditions. If relocation of a privately-owned utility is required, the City will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the City and Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies, in writing, at least 48 hours (excluding Saturdays, Sundays and legal holidays) before excavating in any public way.

1.06 DISTRIBUTION SYSTEMS AND SERVICES

- A. The Contractor shall not interrupt water, telephone, cable TV, sewer, gas, or other related utility services and disrupt the normal functioning of the system as little as possible. Contractor shall notify Engineer well in advance of any requirement for dewatering, isolating, or relocating a section of a utility, so that necessary arrangements may be made with the appropriate agency.
- B. If it appears that the utility service will be interrupted for an extended period, the Engineer may order the Contractor to provide temporary service lines. Inconvenience of the users shall be the minimum, consistent with the existing conditions. The safety and integrity of the system is of prime importance in scheduling work.

1.07 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.
- B. Further, the contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the Owner.
- C. Protection of excavated material; no dirt will be allowed in storm drains or gutters.

1.8 WATER FOR CONSTRUCTION PURPOSES

- A. In locations where public water supply is available, the contractor may purchase metered City water for construction purposes, at applicable rates.
- B. City potable water used during this project can be metered thru a hydrant meter. There is a \$ 650 deposit required for the use of a hydrant meter. The Contractor shall pay for all water consumed at the standard rate.

1.9 MAINTENANCE OF FLOW

The Contractor shall, at his own cost, provide for the flow of sewers, drains, and water courses interrupted during the progress of the work, and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer well in advance of the interruption of any flow.

1.10 CLEAN UP /DUST CONTROL

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as possible. At the end of each and every work day, the Contractor shall dispose of all residue resulting from the construction work and, during the course of work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse resulting from the construction

operation, and shall leave the entire site of the work in a neat and orderly condition on a continual basis.

- B. It shall be the Contractor's responsibility to control dust by watering and sweeping at the end of each and every work day. The water shall be paid for by the Contractor. Should the Contractor fail to control dust to the City Engineer's satisfaction, the City shall control the dust by whatever means necessary and the Contractor shall pay all expenses of that effort incurred by the City to control the dust.

1.11 STREET CLOSURES

Street closures shall be allowed only when the requirements of Section 01570 Traffic Regulation have been met.

1.12 MAINTENANCE OF ACCESS

Portions of the work are located in developed areas requiring the access for fire, police EMS ambulance units, and other departments to be provided for and at least one free lane be available for all emergency traffic. Contractors are to arrange operations in these areas to meet these requirements and secure approval of operating procedures from the Owner.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUBMITTALS

- A. Informational:
 - 1. Submit schedule on OWNER's form.
 - 2. Application for Payment.
 - 3. Final Application for Payment.

1.02 SCHEDULE

- A. Prepare a schedule for the Work in accordance with the requirements of Section 01310.
- B. Unit Price Work: Reflect unit price quantity and price breakdown from the conformed Bid Form.
- C. Lump Sum Work:
 - 1. Reflect schedule format included in conformed Bid Form.
 - 2. List Bonds and insurance premiums, mobilization, demobilization, facility startup, allowance items and contract closeout separately.
 - 3. Break down by Divisions 2 through 16 with appropriate subdivision of each Specification.
- D. An unbalanced or front-end loaded schedule will not be acceptable.
- E. Summation of all the Work shall equal the Contract Price.

1.03 APPLICATION FOR PAYMENT

- A. Transmittal Summary Form: Attach one Summary Form with each detailed Application for Payment. Execute certification by authorized officer of CONTRACTOR.
- B. Use detailed Application for Payment Form provided by ENGINEER.
- C. Include each portion of Work and the unit price breakdown for the Work to be paid on unit price basis, and a listing of OWNER selected equipment, if applicable, and allowances, as appropriate.
- D. Preparation:
 - 1. Round values to nearest dollar.

2. List each Change Order and Written Amendment executed prior to date of submission as separate line item. Totals to equal those shown on the Transmittal Summary Form.
3. Submit Application for Payment, including a Transmittal Summary Form and detailed Application for Payment Form, (4 copies), a listing of materials on hand as applicable, and such supporting data as may be requested by ENGINEER.

1.04 MEASUREMENT - GENERAL

- A. Weighing, measuring, and metering devices used to measure quantity of materials for Work shall be suitable for purpose intended and conform to tolerances and Specifications as specified in National Institute of Standards and Technology, Handbook 44.
- B. Whenever pay quantities of material are determined by weight, material shall be weighed on scales furnished by CONTRACTOR and certified accurate by state agency responsible. Weight or load slip shall be obtained from weigher and delivered to ENGINEER or OWNER's representative at point of delivery of material.
- C. If material is shipped by rail, car weights will be accepted provided that actual weight of material only will be paid for and not minimum car weight used for assessing freight tariff, and provided further that car weights will not be acceptable for material to be passed through mixing plants.
- D. Vehicles used to haul material being paid for by weight shall be weighed empty daily and at such additional times as required by ENGINEER. Each vehicle shall bear a plainly legible identification mark.
- E. Materials that are specified for measurement by the cubic yard measured in the vehicle shall be hauled in vehicles of such type and size that actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. Vehicles not meeting above requirements or loads of quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.
- F. Where measurement of quantities depends on elevation of existing ground, elevations obtained during construction will be compared with those shown on Drawings. Variations of 1 foot or less will be ignored, and profiles shown on Drawings will be used for determining quantities.
- G. Units of measure shown on Bid Form shall be as follows, unless specified otherwise. All methods of measurement shall be approved by the ENGINEER.

ITEM	METHOD OF MEASUREMENT
AC	Acre – Field Measure
AL	Allowance
CY	Cubic Yard – Field Measure within limits specified or shown, or measured in vehicle by volume, as specified
EA	Each – Field Count
GAL	Gallon – Field Measure
HR	Hour
LB	Pound(s) – Weight Measure by Scale
LF	Linear Foot – Field Measure
LS	Lump Sum – Unit is one; no measurement will be made
SF	Square Foot
SY	Square Yard
TON	Ton - Weight Measure by Scale (2,000 pounds)

1.05 PAYMENT

A. General:

1. Progress payments will be made monthly.
2. The date for CONTRACTOR's submission of monthly Application for Payment shall be established at the Preconstruction Conference.
3. The CONTRACTOR shall be solely and directly responsible to the OWNER and operators of utilities, telephone, television, power, water, or sewer systems for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
4. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the Work.

MEASUREMENT AND PAYMENT

5. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.
6. In the event the CONTRACTOR encounters water service lines or sewer laterals that interfere with trenching, he may, by obtaining prior approval of the property owner, the ENGINEER and the OWNER, cut the service, dig through, and restore the service with similar and equal materials at the CONTRACTOR's expense.
7. The CONTRACTOR shall replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract documents or ordered by the CITY.
8. Telephone and communication drops and systems may extend throughout the project area. Properly located cable, conduit, interface equipment, pull or junction boxes and other signal or systems equipment damaged by the CONTRACTOR shall be replaced at the CONTRACTOR's expense. Damaged cable shall be replaced as an entire run, from junction box to junction box.
9. Protect underground and aboveground existing structures from damage, whether or not they lie within the limits of the easements obtained by the OWNER. Where such existing fences, gates, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the property owner involved at the CONTRACTOR's own expense. Notify the ENGINEER of any damaged underground structure, and make repairs or replacements before backfilling.
10. Without additional compensation, the CONTRACTOR may remove and shall replace in a condition as good as or better than original, such small miscellaneous structure as fences, irrigation systems, mailboxes, and signposts that interfere with the CONTRACTOR's operations.
11. Any damage to property, either inside or outside the limits of the easements provided by the OWNER or canal or street rights-of-way, shall be the responsibility of the CONTRACTOR as specified herein. The CONTRACTOR shall provide immediate notice to the OWNER of any damage to fencing and provide temporary fencing as required to provide a functionally similar level of security. The CONTRACTOR shall remove, protect and replace all fences or other items encountered on public or private property. Before final payment will be authorized by the

ENGINEER, the CONTRACTOR will be required to furnish the OWNER with written releases from property owners or public agencies where side agreements or special easements have been made by the CONTRACTOR or where the CONTRACTOR's operations, for any reason, have not been kept within the construction right-of-way obtained by the OWNER or the street right-of-way.

12. The CONTRACTOR shall be responsible for all damage to private property where work related activities have occurred without proper easement or authorization. The CITY may withhold payment to the CONTRACTOR pending resolution of any claims by private owners.

B. General:

No material price increases will be allowed, including gasoline, diesel, asphalt cement, or other materials.

- C. Payment for Lump Sum Work covers all Work specified or shown for all specification items within the contract documents.

1.06 MOBILIZATION / DEMOBILIZATION (Bid Item No. 1)

A. Mobilization and Demobilization.

- B. Payment for mobilization and demobilization will be made at the lump sum price developed from the cost of the unit price items. Mobilization includes, but is not limited to all required testing with passing results, all required bonds, video of existing site conditions and final completion, insurance, site cleanup, sanitary facilities, labor associated with permit acquisition, CONTRACTOR staging area, project signs, project coordination, and demobilization. Partial payments for mobilization and demobilization will be made as follows:

- 25% at the beginning of the work
- 50% at 10% complete
- 75% at 25% complete
- 100% at 100% complete

1.07 MAINTENANCE OF TRAFFIC (Bid Item No.2)

- A. Payment for maintenance of traffic will be made at the lump sum price named in the Bid Schedule.

- B. Payment for maintenance of traffic will be made in equal monthly amounts during the duration of the contract time. Existing traffic signage shall be maintained and protected at all times. There shall be no additional payment for replacement.

1.08 PERMIT FEES ALLOWANCE (Bid Item No. 3)

- A. Payment for permit fees will be based upon the actual permit fees required by the CONTRACTOR from the various agencies having jurisdiction for construction of the project, in accordance with the Contract Documents.
- B. The allowance amount shown on the contract is an estimate for the project and is a cost pass through item and no markups will be added to this item. The CONTRACTOR shall submit documentation with pay request verifying actual cost. Only permit fees substantiated by the CONTRACTOR and approved by the ENGINEER will be paid as part of this bid item. Any balance in this item at the end of the project shall be credited back to the OWNER.

1.05 AS-BUILT SURVEY (Bid Item No. 4)

- A. Payment for as-built preparation will be made at the lump sum price named in the Bid Schedule and shall include the preparation of as-builts and Record Drawings signed and sealed by a State of Florida Licensed Land Surveyor and revisions to as-builts and Record Drawings per ENGINEER/ CITY/ GOVERNMENTAL AGENCIES comments. Signed and sealed as-builts and Record Drawings shall be provided with each pay application.
- B. Payment for THIS ITEM will be made at the lump sum price named in the Bid Schedule AND will be limited to 1% of the original Contract amount for the project. Payment THIS ITEM will be made in equal monthly amounts during the duration of the contract time.

1.06 FURNISH AND INSTALL SILT FENCE AND EROSION CONTROL (Bid Item No. 5)

- A. Payment for furnishing and installing silt fence and erosion control will be made at lump sum price named in the Bid Schedule for all equipment, materials, supplies and labor necessary to prepare, obtain permit approval, and implement the Prevention, Control and Abatement of Erosion and Water Pollution Plan. Work shall include but shall not be limited to soil tracking, sand bagging, slope drains, sediment basins, berms, geosynthetic bales and filter fabric, silt, rock bags, artificial coverings and other items relating to the construction/removal and routine maintenance of the pollution prevention plan.

1.07 FURNISH AND INSTALL TURBIDITY BARRIER (Bid Item No. 6)

- A. Payment for furnishing and installing turbidity barrier will be made at lump sum price named in the Bid Schedule for all equipment, materials, supplies and labor necessary to prepare, obtain permit approval, and implement turbidity barrier to control turbidity within the work area.

1.08 INSTALL TEMPORARY BARGE RAMP (Bid Item No. 7)

MEASUREMENT AND PAYMENT

- A. Measurement for payment to install temporarily barge ramps will be based upon actual quantity, each, of such ramps installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for installing temporary barge ramps will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed installation and removal of the ramps, including pollution prevention controls, to include but not limited to, soil tracking and turbidity barriers, and full restoration of access routes and canal banks.

1.09 CLEAR AND STRIP CANAL TOP OF BANK (Bid Item No. 8)

- A. Measurement for payment to clear and strip canal top of bank will be based upon the number of acres cleared and stripped, all in accordance with the requirements of the Contract Documents.
- B. Payment for clearing and stripping canal bank will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed removal of vegetation described in the specification including providing installing tree protection barriers and trunk protection barriers.

1.10 EXCAVATE – DREDGE MATERIAL (Bid Item No. 9)

- A. Measurement for payment for excavating material for the proposed canal will be based upon the number of cubic yards actually cut all in accordance with the requirements of the Contract Documents. The cut generated from the proposed canal excavation is to be used as fill to balance earthwork as far as possible. As-built elevations shall be provided by a professional surveyor (signed and sealed) subsequent to earthwork operation to verify the site elevations.
- B. Payment for excavating the proposed canal will be made at the unit price per cubic yard of material cut named in the Bid Schedule which price shall constitute full compensation, including earthwork, importing/exporting of material, removal and disposal of excess material and unsuitable material, and removal of obstacles.

1.11 PLACE FILL FOR CANAL (Bid Item No. 10)

- A. Measurement for payment for moving, placing and grading fill will be based upon the number of cubic yards actually required all in accordance with the requirements of the Contract Documents.
- B. Payment for testing, moving, placing, and grading the fill material will be made at the unit price per cubic yard of material tested, moved, placed, and graded in accordance with the requirements of the Bid Schedule which price shall constitute full compensation, including removal and disposal of excess and unsuitable material, and separation of deleterious material.

1.12 LOAD HAUL AND REMOVE MATERIAL FROM THE SITE (Bid Item No. 11)

- A. Measurement for payment for hauling and removing material from the site will be based upon the number of cubic yards truck measured and actually removed all in accordance with the requirements of the Contract Documents.
- B. Payment for testing, hauling and removing the fill material will be made at the unit price per cubic yard of material tested, hauled and removed in accordance with the requirements of the Bid Schedule which price shall constitute full compensation, including disposal fees for the material.

1.13 RESHAPE AND STABILIZE CANAL BANK (Bid item No. 12)

- A. Measurement for payment for cleaning reshaping and stabilizing canal bank will be based upon the number of linear feet actually cleaned reshaped and stabilized from edge of water to the right-of-way line and adjacent private property, all in accordance with the requirements of the Contract Documents.
- B. Payment for cleaning reshaping and stabilizing canal bank will be made at the unit price per linear feet of canal bank which price shall constitute full compensation, including grading to a stable slope, removal and disposal of excess material and unsuitable material, removal of obstacles within the right-of-way, coordination with utilities responsible for relocation, adjustment, and protection of trees to remain. However, the Engineer may direct the Contractor to relocate trees to adjacent private property when requested by homeowners. Homeowners must sign a waiver and assume maintenance responsibility for trees in such situations. Contractor shall stake ROW limits a minimum of two weeks in advance of construction in order to coordinate with adjacent property owners and possible conflicting utilities.

1.14 RESTORE AND STABILIZE RIP-RAP WALLS (Bid Item No. 13)

- A. Measurement for payment for the restoring and stabilizing canal banks at roadway crossings will be based upon the number of linear feet actually restored and stabilized in accordance with the requirements of the Contract Documents.
- B. Payment for the restoring and stabilizing canal banks at roadway crossings will be made at the unit price per linear feet, named in the Bid Schedule which price shall constitute full compensation for the complete installation of rip rap including but not limited to excavation, dewatering, dredging, hauling, backfill and compaction, construction of the concrete cap, turbidity barriers, pins, restoration and all else necessary for a complete installation.

1.15 FURNISH & INSTALL TREES (Bid Item No 14)

- A. Measurement for payment for furnishing and installing trees will be based upon the actual number, of each tree installed all in accordance with requirements of the Contract Documents.

- B. Payment for furnishing and installing trees will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the complete installation, watering for one year for establishment, guys, weed control, and planting soil.
- C. Trees shall be guyed and protected as shown on the drawings. Trees shall be warranted for one year after substantial completion issuance in accordance with the requirements of the Contract Documents.

1.16 FURNISH & INSTALL REPLACEMENT SOD (Bid Item No. 15)

- A. Measurement for payment for furnishing and installing sod will be based upon the number of square feet of sod actually installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for sod will be made at the unit price per square foot of sod named in the Bid Schedule which price shall constitute full compensation for furnishing and installing topsoil and sod.

1.17 FURNISH & INSTALL SHRUBS (Bid Item No 16)

- A. Measurement for payment for furnishing and installing shrubs will be based upon the actual number, of each shrub installed all in accordance with requirements of the Contract Documents.
- B. Payment for furnishing and installing shrubs will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the complete installation, watering for one year for establishment, weed control, and planting soil.

1.18 IRRIGATION SYSTEM RESTORATION (Bid Item No. 17)

- A. Measurement for payment for furnish and install irrigation system restoration will be based upon the actual number, each lot, of such irrigation systems restored, all in accordance with requirements of the Contract Documents.
- B. Payment for irrigation system restoration will be made at the unit price, each lot, named in the Bid Schedule which price shall constitute full compensation for the complete restoration of the irrigation system including capping existing system during construction and installing new piping.
- C. Irrigation systems shall be restored with pipe matching the size of the existing pipe and necessary adapters and coupling at each end splicing the restored pipe in place. All work shall meet the approval of the ENGINEER.

1.19 MISCELLANEOUS RESTORATION (Bid Item No. 18)

- A. Measurement for payment for miscellaneous restoration will be based upon the actual linear foot or square foot of roadway pavement, guardrail, chain-link, retaining wall or wooden fencing restored, all in accordance with requirements of the Contract Documents.
- B. Payment for miscellaneous restoration will be made at the actual measurement, which price shall constitute full compensation for the complete restoration of the facility including foundation or limerock base preparation, asphalt, concrete, rip-rap, posts, rails and all else necessary for a complete restoration

1.24 PAYMENT / ALLOWANCES

- A. Nonpayment for Rejected or Unused Products
 - 1. Payment will not be made for the following:
 - a. Loading, hauling, and disposing of rejected material.
 - b. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
 - c. Rejected loads of material, including material rejected after it has been placed by reason of failure of CONTRACTOR to conform to provisions of Contract Documents.
 - d. Material not unloaded from transporting vehicle.
 - e. Defective Work not accepted by OWNER.
 - f. Material remaining on hand after completion of Work.
- B. Partial Payment for Stored Materials and Equipment
 - 1. Partial Payment: No partial payments will be made for stored materials.
- C. Allowances
 - 1. The allowances shall be used only at the discretion of and as ordered by the OWNER.
 - 2. Any portion of these allowances that remain after all authorized payments have been made, will be withheld from contract payments and will remain with the OWNER.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01041

PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Engineer will coordinate the work between City and Contractor, as required. The City may use their own staff engineer for construction management.
- B. Each prime Contractor shall:
 - 1. Coordinate work of his employees and subcontractors.
 - 2. Expedite his work to assure compliance with schedules.
 - 3. Coordinate his work with that of other Contractors and work by Owner.
 - 4. Comply with orders and instructions of Engineer.

1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work
- B. Section 01200: Project Meetings
- C. Section 01310: Construction Schedules
- D. Section 01340: Shop Drawings, Product Data and Samples

1.03 CONSTRUCTION ORGANIZATION AND START-UP

- A. Engineer shall establish on-site lines of authority and communications:
 - 1. Schedule and conduct pre-construction meeting and progress meetings as specified in Section 01200.
 - 2. Establish procedures for:
 - a. Submittals
 - b. Reports and records
 - c. Recommendations
 - d. Coordination of drawings
 - e. Schedules
 - f. Resolution of conflicts
 - 3. Interpret Contract Documents - Transmit written interpretations to Prime Contractor, and to other concerned parties.
 - 4. Assist in Obtaining Permits and Approvals- Verify that contractors and subcontractors have obtained inspections for work.

5. Control the Use of Site – Allocate space and time for each Prime Contractor's use of work and storage areas.
6. Inspection and testing:
 - a. Inspect work to assure performance in accord with requirements of contract documents.
 - b. Administer special testing and inspections of suspect work.
 - c. Reject work which does not comply with requirements of contract documents.
 - d. Coordinate testing laboratory services:
 - 1) Verify that required laboratory personnel are present.
 - 2) Verify that tests are made in accordance with specified standards.
 - 3) Review test reports for compliance with specified criteria.
 - 4) Recommend and administer any required re-testing.

1.04 CONTRACTOR'S DUTIES

- A. Construction Schedules:
 1. Prepare a detailed schedule of basic operations.
 2. Monitor schedules as work progresses:
 - a. Identify potential variances between scheduled and probable completion dates for each phase.
 - b. Recommend to Owner adjustments in schedule to meet required completion dates.
 - c. Document changes in schedule; submit to Owner, Engineer and to involved subcontractors.
 3. Observe work of each subcontractor to monitor compliance with schedule.
 - a. Verify that labor and equipment are adequate for the work and the schedule.
 - b. Verify that product procurement schedules are adequate.
 - c. Verify that product deliveries are adequate to maintain schedule.
 - d. Report noncompliance to Engineer, with recommendation for changes.

- B. Process Shop Drawings, Product Data and Samples:
 - 1. Prior to submittal to Engineer, review for compliance with contract documents:
 - a. Field dimensions and clearance dimensions.
 - b. Relation to available space.
 - c. Effect of any changes on the work of any subcontractor.
- C. Maintain Reports and Records at job site, available to Engineer and Owner.
 - 1. Daily log of progress of work.
 - 2. Records
 - a. Contracts
 - b. Purchase orders
 - c. Materials and equipment records
 - d. Applicable handbooks, codes and standards
 - 3. Maintain file of record documents.

1.05 CONTRACTOR'S CLOSE-OUT DUTIES

- A. At completion of work, conduct an inspection to assure that:
 - 1. Specified cleaning has been accomplished.
 - 2. Temporary facilities have been removed from site.
 - 3. Submit to Owner written notice of beginning of warranty period for equipment put into service.
- B. Substantial Completion:
 - 1. Conduct an inspection to develop a list of Work to be completed or corrected.
 - 2. Assist Engineer in inspection.
 - 3. Supervise correction and completion of work of subcontractors.

1.06 ENGINEER'S CLOSE-OUT DUTIES

- A. Substantial Completion:
 - 1. Conduct an inspection to develop a punch list of Work to be completed or corrected.
- B. Final Completion:
 - 1. When each Contractor determines that work is finally complete, conduct an inspection to verify completion of work.
- C. Administration of Contract Closeout:
 - 1. Receive and review Contractor's final submittals.
 - 2. Transmit to Owner with recommendations for action.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

PART 4 – PROJECT CLOSEOUT

4.01 CLOSEOUT PROCEDURES

- A. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
- B. Submit results of all tests.
- C. Complete all punch list items.
- D. When Contractor considers work has reached final completion, submit written certification that Contract Documents have been reviewed, work has been inspected and that work is complete in accordance with Contract Documents and ready for Engineer's final inspection.
- E. In addition to submittals required by the conditions of the Contract, provide testing and submittals required by governing authorities and regulatory agencies, and submit a final statement of accounting giving total adjusted contract sum, previous payments and sum remaining due.
- F. Engineer will issue a final change order reflecting approved adjustments to contract sum not previously made by change order.
- G. Submit as-built record drawings for approval.

4.02 FINAL CLEANING

- A. Execute prior to final inspection.
- B. Clean site; sweep paved areas, rake clean other surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site.
- D. Clean adjacent facilities of construction debris or sediments.

4.03 RELEASE OF LIENS

Provide a release of lien from all subcontractors and materials suppliers including General Contractor's release of lien.

END OF SECTION

SECTION 01050

FIELD ENGINEERING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Provide and pay for field engineering services required for the project.

1. Survey work required in execution of project.
2. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract.
- B. Section 01010: Summary of Work

1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEER

Qualified Engineer or Registered Land Surveyor, Licensed in Florida, acceptable to Contractor and Owner.

1.04 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on drawings.
- B. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.
 1. Make no changes or relocations without prior written notice to Engineer.
 2. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 3. Require surveyor to replace project control points which may be lost or destroyed.
 - a. Establish replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

- A. Establish lines and levels, locate and layout, by instrumentation and similar appropriate means:
 - 1. Site improvements
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert or centerline elevations.
- B. From time to time, verify layouts by same methods.
- C. Locate and mark all known underground utilities prior to entrance of any equipment on the site. All such utilities shall be protected from heavy traffic. Establish and maintain barricades around all manholes, drains, and similar underground items. Immediately notify the owner of any conflict between operations and any in ground item to remain.
- D. Establish a minimum of two permanent bench marks referenced to data established by survey control points and record location with horizontal and vertical data on record documents.

1.06 RECORDS

Maintain a complete, accurate log of all control and survey work as it progresses.

1.07 SUBMITTALS

- A. Submit name and address of surveyor and professional engineer to Engineer.
- B. On request of Engineer, submit documentation to verify accuracy of field engineering work.
- C. Submit certificate signed by Registered Land Surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 ALL LOCATIONS

All locations shall be used to update the design drawing CADD file and to be incorporated into the City's planned G.I.S. system. All coordinates shall be in the State Plane Coordinate System.

END OF SECTION

SECTION 01090

REFERENCE STANDARDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Abbreviation and acronyms used in Contract Documents to identify reference standards.

1.02 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

1.03 ABBREVIATIONS, NAMES, AND ADDRESSES OF ORGANIZATIONS

Obtain copies of referenced standards direct from publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.

AA	Aluminum Association 818 Connecticut Avenue, N.W. Washington, DC 20006
AABC	Associated Air Balance Council 1000 Vermont Avenue, N.W. Washington, DC 20005
AASHTO	American Association of State Highway & Transportation Officials 444 North Capitol Street, N.W. Washington, DC 20001

REFERENCE STANDARDS

ACI	American Concrete Institute Box 19150 Redford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASPA	American Sod Producers Association Association Building Ninth and Minnesota Hastings, NE 68901
ASTM	American Society of Testing & Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
AWPA	American Wood-Preserver's Association 7735 Old Georgetown Road Bethesda, MD 20014

REFERENCE STANDARDS

AWS	American Welding Society 2501 NW 7th Street Miami, FL 33125
CDA	Cooper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10017
CII	Chlorine Institute, Inc. 2001 L Street, N.W., Suite 506 Washington, D.C. 20036
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue Washington, DC 20036
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
MF	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
NEMA	National Electrical Manufacturer's Association 2101 L Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NFPA	National Forest Products Association 1619 Massachusetts Avenue, N.W. Washington, DC 20036

REFERENCE STANDARDS

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
PS	Product Standard U.S. Department of Commerce Washington, DC 20203
TAS	Technical Aid Series Construction Specifications Institute 1150 Seventeenth Street, N.W. Washington, DC 20036
UL	Underwriter's Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Owner shall schedule and administer pre-construction meeting, periodic progress meetings, and specially called meetings throughout progress of the work. The City or the Engineer shall:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four days in advance of meeting date.
 - 3. Record the minutes; include significant proceedings and decisions.
 - 4. Reproduce and distribute copies of minutes after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
- B. Representatives of Contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.02 RELATED REQUIREMENTS

- A. Section 01041: Project Coordination
- B. Section 01310: Construction Schedules
- C. Section 01340: Shop Drawings, Product Data and Samples

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule within 20 days after the Project Initiation Date.
- B. Location: A central site, convenient for all parties, designated by the Owner.
- C. Attendance:
 - 1. Owner's Representative
 - 2. Engineer and his professional consultants.
 - 3. Engineer's Resident Project Representative
 - 4. Contractor's Superintendent and/or Project Manager
 - 5. Major subcontractors
 - 6. Others as appropriate and approved by the Owner.
- D. Suggested Agenda:
 - 1. Distribution and discussion of:

- a. List of major subcontractors and suppliers.
- b. Projected construction schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Project coordination.
 - a. Designation of responsible personnel.
5. Procedures and processing of:
 - a. Field decisions
 - b. Proposal requests
 - c. Submittals
 - d. Change Orders
 - e. Applications for payment
6. Adequacy for distribution of Contract Documents
7. Procedures for maintaining record documents
8. Use of premises:
 - a. Office, work and storage areas
 - b. Owner's requirements
9. Construction facilities, controls and construction aids
10. Temporary utilities
11. Safety and first-aid procedures
12. Security procedures
13. Housekeeping procedures
14. Miscellaneous

1.04 PROGRESS MEETINGS

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the work.

C. Attendance:

1. Engineer, and his professional consultants as needed.
2. Subcontractors as appropriate to the agenda.
3. Suppliers as appropriate to the agenda.
4. Others

D. Suggested Agenda:

1. Review, approval of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which impede construction schedule.
5. Review of off-site fabrication, delivery schedules.
6. Corrective measures and procedures to regain projected schedule.
7. Revisions to construction schedule.
8. Progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Review of submittal schedules; expedite as required.
11. Maintenance of quality standards.
12. Pending changes and substitutions.
13. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on other contracts relating to the project.
14. Review of record drawings
15. Other business

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Within 5 business days after the earlier of the Notice of Award of the contract or the Project Initiation Date, prepare and submit to Engineer estimated construction progress schedules for the work, with sub-schedules of related activities which are essential to its progress. This preliminary schedule will be discussed at the Pre-construction Meeting and may be commented upon by the Engineer at an earlier time.
- B. Submit revised progress schedules to maintain proposed schedule within five (5) business days after the earlier of the Notice to Proceed or the Project Initiation Date and as needed by changing conditions or emerging circumstances. Additionally, submit a revised schedule within five (5) business days after receipt of comments to the preliminary schedule prior to and/or at the Pre-construction Meeting, responding to all comments.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract
- B. Section 01010: Summary of Work
- C. Section 01041: Project Coordination
- D. Section 01200: Project Meetings
- E. Section 01340: Shop Drawings, Product Data and Samples

1.03 FORM OF SCHEDULES

- A. Prepare schedules in the form of:
 - 1. Horizontal bar chart
 - 2. Network analysis system
 - 3. Other method accepted by Owner
- B. Format of listings: The chronological order of the start of each item of work.
- C. Should the Contractor elect to utilize proprietary software, such as Primavera, for the Progress Schedule and its updates, he shall provide two (2) licensed copies of said software for the City's and the Engineer's use at his sole expense.

1.04 CONTENT OF SCHEDULES

- A. Construction progress schedule:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning, and completion of each major element of construction.

- B. Submittals, schedule for shop drawings, product data and samples. Show:
 - 1. The dates for Contractor's submittals.
 - 2. The dates approved submittals will be required from the Engineer.
- C. Provide sub-schedules to define critical portions of prime schedules.

1.05 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule:
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime contractors.

1.06 SUBMISSIONS

- A. Submit six (6) copies of the initial and revised schedules, as required in Paragraph 1.01 A and B, above.
 - 1. Engineer will review schedules and return review copy within 10 days after receipt.
 - 2. If required, resubmit within five (5) days after return of review copy.
- B. With each application for payment, submit six (6) updated copies of progress schedule.

1.07 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 - 1. Job site file
 - 2. Subcontractors
 - 3. Other concerned parties
- B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Submit Shop Drawings, Product Data and Samples required by Contract Documents or for any material or equipment which is required but not specified in the Contract or which is not the exact make and model specified in the Contract.
- B. Provide installation sketches showing dimensions, pipe and fittings needed to install pump assembly in sufficient detail and quality to allow the Engineer to properly review the submittal.

1.02 RELATED REQUIREMENTS

- 1. Definitions and additional responsibilities of parties: Conditions of the Contract.
- 2. Section 01630 - Substitutions and Product Options
- 3. Forms Section: Article 10 – “Or Equal” Clause
Article 20 – Shop Drawings

1.03 SHOP DRAWINGS

- A. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet, detail or schedule.
- B. Minimum sheet size: 8½" x 11".

1.04 PRODUCT DATA AND INSTALLATION SKETCHES

- A. Preparation:
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics.
 - 3. Show dimensions and clearances required.

- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams by deleting information, which is not applicable to the work.
 - 2. Supplement standard information to provide information specifically applicable to the work.

1.05 SAMPLES

Office samples shall be of sufficient size and quantity to clearly illustrate:

- 1. Functional characteristics of the product, with integrally related parts and attachment devices.
- 2. Full range of color, texture and pattern.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings, product data and samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and similar data
 - 4. Conformance with specifications
- C. Coordinate each submittal with the requirements of the work and of the Contract Documents.
- D. Notify the Engineer in writing, at the time of submission, of any deviations in the submittals from the requirements of the Contract Documents.
- E. Begin no fabrication or work, which requires approved submittals until the return of the approved submittals by Engineer.
- F. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.

1.07 SUBMISSION REQUIREMENTS

- A. The Contractor shall make submittals in such sequence as to cause no delay in the work.
- B. Number of submittals required:
 - 1. Shop Drawings: Submit six (6) opaque reproductions.
 - 2. Product Data: Submit the number of copies which the Contractor requires, plus three which will be retained by the Engineer, but no more than eight total.
 - 3. Samples: Submit the quantity stated in each specification section.
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The project title and number.
 - 3. Contract identification.
 - 4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
 - 5. Identification of the product, with the specification section number.
 - 6. Field dimensions, clearly identified as such.
 - 7. Relation to adjacent or critical features of the work or materials.
 - 8. Applicable standards, such as ASTM or Federal Specification numbers.
 - 9. Identification of deviations from Contract Documents.
 - 10. Identification of revisions on resubmittals.
 - 11. An 8-inch x 3-inch blank space for Contractor and Engineer stamps.
 - 12. Contractor's stamp initialed or signed, certifying to review of submittal, along with verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the Work and of Contract Documents. Stamp shall be no smaller than 12" x 3" or larger than 2" x 32".
- D. Facsimiles or copies of facsimiles will not be accepted as shop drawing submittals without prior approval of the Engineer.
- E. Requests for Information (RFI) shall be submitted on a standard form provided by the Engineer. RFIs shall indicate their importance to the timely completion of the project. RFIs will be processed as a shop drawing unless there is an urgent need for immediate response.

- F. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor and will be considered as "not submitted" until resubmitted. The Engineer may, at his option, provide a list or mark the submittal directing the Contractor to the areas that are incomplete.

1.08 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals noted by the Engineer and resubmit unless otherwise noted.
- B. Shop Drawings and Product Data:
 - 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 - 2. Indicate any changes, which have been made other than those suggested by the Engineer by "clouding" the change and noting the revisions number along side the cloud.
- C. Samples: Submit new samples as required for initial submittal.

1.09 DISTRIBUTION

Distribute shop drawings and copies of product data, which carry the Engineer's stamp:

- 1. Shop Drawings:
 - a. Two copies to Owner.
 - b. Two copies to Engineer.
 - c. Two copies to Contractor.
- 2. Product Data:
 - a. Two copies to Owner.
 - b. Two copies to Engineer.
 - c. Two copies to Contractor.
- 3. Distribute samples as directed by the Engineer.

1.10 ENGINEER'S DUTIES

- A. Review submittals within 30 days or in accord with schedule.
- B. Affix stamp and initials or signature, and indicate status of submittal.
- C. Return submittals to Contractor for distribution, or for resubmission.

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- D. The Engineer will review a submittal/re-submittal a maximum of two times after which the cost of the review will be borne by the Contractor. The cost of engineering shall be equal to the Engineer's charges to the Owner under the terms of the Engineer's agreement with the Owner. The Engineer's hourly charges to the City for these excessive reviews, which will be deducted from the amount due to the Contractor, will be at the rate stated in the project's proposal.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Contractor will employ services of an independent testing laboratory approved by the Owner to perform specified testing. Contractor shall pay costs of services from allowance specified in the special conditions.

- A. Contractor shall cooperate with laboratory to facilitate the execution of its required services.
- B. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the work of the contract.

1.02 RELATED REQUIREMENTS

- A. Conditions of the contract: Inspection and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.
- B. Special Conditions: Allowances
- C. Related requirements specified in other sections.
- D. Respective sections of specifications. Certification of products.
- E. Section 02221: Trenching, Excavation, Backfilling and Compacting
- F. Section 02577: Surface Restoration
- G. Each specification section listed: Laboratory tests required, and standards for testing.

1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of contract documents.
 - 2. Approve or accept any portion of the work.
 - 3. Perform any duties of the Contractor.

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and/or Engineer, provide access to work or manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

TESTING LABORATORY SERVICES

- C. Provide to the laboratory material mixes which require control by the testing laboratory.
- D. Furnish copies of product test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to work to be tested.
 - 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests:
 - 1. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.
- G. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 PAYMENT

- A. Testing of materials and products will be performed by an independent testing laboratory appointed and paid for under the Lump Sum Bid Item Mobilization. Testing will be performed so as to least encumber the performance of work..
- B. The Contractor shall pay for costs of additional testing as required due to improper performance of work.

END OF SECTION

SECTION 01530

BARRIERS

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish, install and maintain suitable and sufficient barriers as required to protect the public, the Work, existing facilities, trees and plants. Remove the barriers when no longer needed, or at completion of Work.

1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work
- B. Section 01570: Traffic Regulation

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

Materials may be new or used, suitable for the intended purpose, but must not violate the requirements of applicable codes and standards.

2.02 BARRIERS

Materials are Contractor's option, as appropriate to serve required purpose.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for the required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by the progress of construction.

3.02 FENCES

- A. Provide and maintain fences (minimum 6' high) necessary to assure security of the site during the contract time to keep unauthorized people and animals from the site when construction is not in progress.

- B. Provide additional security measures as deemed necessary and approved by the Engineer and/or the Owner.
- C. Fence shall be No. 11 gauge, 2" mesh, galvanized chain-link fabric.

3.03 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants which are designated to remain.
- B. Consult with the Engineer, and remove agreed-on roots and branches which interfere with construction.
- C. Protect root zones of trees and plants:
 - 1. Do not allow vehicular traffic or parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- D. Carefully supervise excavating, grading and filling, and other construction operations, to prevent damage.
- E. Replace trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.04 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed and when approved by Engineer.
- B. Repair damage caused by construction. Fill and grade areas of the site to the required elevations.
- C. Perform thorough clean-up of the site and adjacent areas of all traces of the Contractor's presence.

END OF SECTION

SECTION 01570

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide a maintenance of traffic plan to the Engineer for review and approval by permitting agencies and the City's Police and Fire Departments.
- B. Provide, operate and maintain equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow around the construction area. Conform to the Broward County and FDOT permit requirements.
- C. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions, including striping.
- D. Maintain safe passageway for pedestrian traffic. Conform to Broward County "Maintenance of Traffic School/Pedestrian" requirements.
- E. The Contractor shall provide notification to the Engineer and the City's Police and Fire Departments of any street closures at least 48 hours in advance of such closure.
- F. Additional Traffic requirements are presented on the Drawings.

1.02 RELATED REQUIREMENTS

- A. Section 01041: Project Coordination.
- B. Section 01530: Barriers.

1.03 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, or affected by Contractor's operations.
- B. Provide traffic control and directional signs, mounted on barricades or standard posts according to FDOT and MUTCD standards:
 - 1. At each change of direction of a roadway and at each crossroad.
 - 2. At detours.
 - 3. At parking areas.

1.04 FLAGGERS

Provide qualified and suitably equipped flaggers when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.05 FLARES AND LIGHTS

- A. Provide flares and lights during periods of low visibility:
 - 1. To clearly delineate traffic lanes and to guide traffic.
 - 2. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas.

1.06 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Monitor parking of construction personnel's private vehicles.
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.07 HAUL ROUTES

- A. Consult with governing authorities, establish public thoroughfares which will be used as haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to expedite traffic flow, to minimize interference with normal public traffic.

1.08 MAINTENANCE OF TRAFFIC

The Contractor shall submit four (4) copies of a maintenance of traffic plan to the Engineer for review. Measurement and payment shall be the lump sum bid price for complete maintenance of traffic.

PART 2 - PRODUCTS

Not Used

PART 3 – EXECUTION

3.01 GENERAL POLICIES

The following policies apply to work in all rights-of-way:

- No Maintenance of Traffic lane closures is to be set-up until work begins. The MOT subcontractor cannot set up a lane closure in the morning for work to be performed later in the day.
- The permitting contractor must remain on-site after construction work until the Maintenance of Traffic lane closures are removed from the highway or they must remove it themselves upon completion of work. The worksite cannot be abandoned with lanes closed while awaiting the MOT subcontractor to clean up.
- Should there be a lane closing MOT setup in the road without permittee personnel present, the Owner may pick up the closure and charge the permittee restitution to remove and retain the lane closure equipment.
- A 24 hour pager or service number of the person in responsible charge in which to contact during all times of roadway work and lane closures shall be included in the MOT plant package.
- The permittee may be required to submit the names, addresses, active contracting license numbers, and the certified worksite safety supervisor's current certificate of all contractors performing work on state roads upon request. Please be advised that failure to perform work as required by DOT standards may result in pursuance of legal matters against licensed contractors performing the work.
- Should the use of "Off Duty" Police officers be required, the Contractor shall coordinate with the City of Hallandale Beach Police Department.

END OF SECTION

SECTION 01600**PERMITS****PART 1 - GENERAL****1.01 GENERAL**

The Owner has obtained design stage permits for this project from the following agencies and companies:

A. Florida Department of Environmental Protection (FDEP) / Broward County Environmental Protection & Growth Management Department (BCEPGMD)

1. Permit No. **WW-62665**

B. South Florida Water Management District (SFWMD)

1. The Contractor shall apply for and obtain a Water Use Permit – Dewatering Part. Broward County Contaminated Sites Map shows no known contaminated groundwater sites shown on their maps in the areas of this project.

C. City of Hallandale Beach Building Department

1. Permit No. State of Florida ERP No.: 06-0393193-001
Broward County ERL No.: DF20-1231

Copies of these permits and correspondences are included at the end of this Section. The Contractor is bound by and shall comply with all applicable provisions of these permits and correspondences. The contractor shall, at his sole expense, obtain and comply with any other permits he may need to perform the work of this contract.

1.02 Fees and Security Deposits

Security deposits, should any be required, will be paid by the Contractor. Permit fees shall be paid for by the Contractor. See SFWMD's current fee schedule for the dewatering permit. The cost of all such expenses shall be included by the Contractor in his bid for the applicable Item of Work.

1.03 Flagmen and Other Traffic Controls

The Contractor shall provide, at his sole expense, all special traffic control and maintenance of traffic provisions, including flagmen, required by any agency or right-of-way owner have jurisdiction or issuing a permit.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01630

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 -GENERAL

1.01 REQUIREMENTS INCLUDED

Furnish and install products specified, under options and conditions for substitutions stated in this section. All products must be preapproved by the Engineer and the City.

1.02 RELATED REQUIREMENTS

- A. Information for bidders, general and special conditions.
- B. Section 01010: Summary of Work
- C. Forms Section

1.03 PRODUCTS LIST

- A. Coincident with return of the signed contract and the submission of required bonds (subsequent to Commission Award), the contractor shall submit to Engineer five copies of complete list of major products which are proposed for installation.
- B. Tabulate products by specification section number and title.
- C. For products specified only by reference standards, list for each such product:
 - 1. Name and address of manufacturer
 - 2. Trade name
 - 3. Model or catalog designation
 - 4. Manufacturer's data:
 - a. Reference standards
 - b. Performance test data

1.04 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B. For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with specifications.

SUBSTITUTIONS AND PRODUCT OPTIONS

- C. For products specified by naming only one or more products or manufacturers and stating "or equal", submit a request as for substitutions, for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one or two product(s) and manufacturer(s) and where it states that this is a Sole Source or No Substitution item, there is no option and no substitution will be allowed without prebid qualification.

1.05 SUBSTITUTIONS AND PREQUALIFICATION OF SIMILAR METHODS

- A. Within a period of 10 days after Notice to Proceed with the contract, Engineer will consider formal requests from the Contractor for substitution of products in place of those specified.
 - 1. After end of that period, request will be considered only in case of product unavailability or other conditions beyond the control of Contractor.
- B. Submit separate request for each substitution. Support each request with:
 - 1. Complete data substantiating compliance of proposed substitution with requirements stated in contract documents:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature; identify:
 - 1) Product description
 - 2) Reference standards
 - 3) Performance and test data
 - c. Samples, as applicable
 - d. Name, phone number of contact persons and address of two or more similar projects on which product has been used. Date of each installation with contact references and quantities installed. Indicate scope and size of reference projects.
 - 2. Itemized comparison of the proposed substitution with product specified; list significant variations.
 - 3. Data relating to changes in construction schedule.
 - 4. Any effect of substitution on separate contracts.
 - 5. List of changes required in other work or products.
 - 6. Accurate cost data comparing proposed substitution with product specified.

SUBSTITUTIONS AND PRODUCT OPTIONS

7. Designation of required license fees or royalties.
 8. Designation of availability of maintenance services, sources of replacement materials.
- C. Substitutions will not be considered for acceptance when:
1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
 2. They are requested directly by a subcontractor or supplier.
 3. Data relating to changes in construction schedule.
 4. Any effect of substitution on separate contracts.
 5. List of changes required in other work or products.
 6. Acceptance will require substantial revision of contract documents or drawings.
- D. Substitute products shall not be ordered or installed without written acceptance of Engineer.
- E. Engineer and City will determine acceptability of proposed substitutions.

1.06 CONTRACTOR'S REPRESENTATION

- A. In making formal request for substitution Contractor represents that:
1. Contractor has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
 2. Contractor will provide same warranties or bonds for substitution as for product specified.
 3. Contractor will coordinate installation of accepted substitution into the work, and will make such changes as may be required for the work to be complete in all respects.
 4. Contractor waives claims for additional costs caused by substitution which may subsequently become apparent.

SUBSTITUTIONS AND PRODUCT OPTIONS

5. Cost data is complete and includes related costs under his contract, but not:
 - a. Costs under separate contracts.
 - b. Engineer's costs of redesign or revision of contract documents.

1.07 ENGINEER DUTIES

- A. Review Contractor's requests for substitutions with reasonable promptness.
- B. Notify Contractor, in writing, of decision to accept or reject requested substitution.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 02156

TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

PART 1 - GENERAL

1.01 SCOPE

The Contractor shall submit a Notice of Intent to Use the Generic Permit for Discharge of Ground Water from Dewatering Operations to the Florida Department of Environmental Protection.

During the life of a contract the Contractor shall control water pollution, soil erosion, and siltation through the use of berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods in accordance with the Storm Water Pollution Prevention Plan and conditions of the permit. The Contractor must maintain a copy of the Storm Water Pollution Prevention Plan on site.

The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

PART 2 - MATERIALS

2.01 GRASS

Grass which will not compete with the grasses sown later for permanent cover shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover.

2.02 MULCHES

Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials.

2.03 FERTILIZER

Fertilizer shall be a standard commercial grade and shall conform to all Federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

2.04 SLOPE DRAINS

Slope drains may be constructed of pipe, fiber mats, rubble, portland cement concrete, bituminous concrete, or other materials that will adequately control erosion.

2.05 TURBIDITY CURTAIN

The Curtain shall meet the requirements of Florida Department of Transportation Standard Index No. 103 (2010) and FDOT Standard Specifications for Road and Bridge Construction Section 104.

2.06 OTHER

All other materials, such as geotextile, shall meet commercial grade standards and shall be approved by the Engineer before being incorporated into the project.

PART 3 - EXECUTION OF WORK

3.01 GENERAL

In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

3.02 SCHEDULE

Prior to the start of construction, the Contractor shall submit schedules for accomplishment of erosion control work, as are applicable for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the Engineer.

3.03 CONSTRUCTION DETAILS

The Contractor will be required to incorporate all erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall

perform the permanent surface restoration and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, temporary erosion control measures may be required between successive construction stages.

The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

Whenever construction equipment must cross watercourses at frequent intervals, and such crossings will adversely affect the sediment levels, temporary structures should be provided.

Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto.

END OF SECTION

SECTION 02221

TRENCHING, EXCAVATION, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Excavate for all underground piping, including services.
- B. Place and compact granular beds and fills over services to rough-grade elevations.
- C. Dewater excavations as required.
- D. Provide daily cleanup of site, backfilling of open trenches shall be done as soon as pipe work is complete. Stored materials shall not block vehicular or pedestrian traffic. Provide access to adjacent properties, control dust and erosion.
- E. Maintain turbidity and erosion control.

1.02 RELATED WORK

- A. Section 01410: Testing Laboratory Services
- B. Section 02577: Surface Restoration
- C. Section 02610: Pipe and Fittings

1.03 SITE COMPACTION TESTING

- A. Testing of compacted fill materials will be performed in accordance with Section 01410.
- B. If, during progress of work, tests indicate that compacted materials do not meet specified requirements, remove defective work, replace and retest as directed by the Engineer.
- C. Ensure compacted fills are tested before proceeding with placement of surface materials.

1.04 PROTECTION

- A. Protect trees, shrubs and lawn areas to receive planting, rock outcropping and other features remaining as part of final landscaping.

TRENCHING, EXCAVATION, BACKFILLING AND COMPACTING

- B. Protect bench marks and existing structures, roads, sidewalks, paving and curbs against damage from vehicular or foot traffic. Install and maintain proper bridging, planking and cants to provide access to buildings.
- C. Protect excavations by shoring, bracing, sheet piling, underpinning, or by other methods, as required to prevent cave-ins or loose dirt from falling into excavations.
- B. Underpin or otherwise support adjacent structure(s) which may be damaged by excavation work. This includes service lines and pipe chases.
- C. Notify Engineer of any unexpected subsurface conditions. Discontinue work in the area until Engineer provides notification to resume work.
- D. Prevent washing or piping of soils during dewatering procedures, provide turbidity control.
- E. Saw cut trench edges to protect adjacent concrete and asphalt.
- F. Maintain site to prevent erosion or sediment transport from the site.
- G. Keep site clean and orderly, control dust and debris.
- H. In grass shoulder and easement areas, the contractor shall be responsible for locating, temporarily relocation, safeguarding and restoring irrigation lines and facilities.

PART 2 - PRODUCTS

2.01 BED AND FILL MATERIALS

- A. Bed Materials: Approved granular material, crushed stone, or washed rock, $\frac{3}{4}$ inch, maximum, non-cohesive and non-plastic, free of organic matter compacted to 100% maximum density per AASHTO T-180. A minimum of 4-inches of bedding material, measured from bottom of bell to natural earth, shall be used. Bedding material shall support pipe as shown on the drawings. When excavation of rock is encountered, all rock shall be removed to a depth of at least 6-inches below the pipe and replaced with bedding material.
- B. Selected Backfill: After pipe joints have been inspected and given preliminary approval, and sufficient time has elapsed for setting of joints if necessary, backfilling shall be performed by hand, together with tamping, until fill has progressed to an elevation at least one foot above the top of the pipe bell. During this initial stage of backfilling, approved granular 2-inch, maximum, materials free from lumps, clods, or muck shall be deposited in layers of approximately 6-inches thick and compacted by hand or with manually operated machine tampers actuated by compressed air, or other suitable means. Tamps and machines shall be suitable for the work, and subject to the approval of the Engineer.

TRENCHING, EXCAVATION, BACKFILLING AND COMPACTING

- C. Backfill Material: Excavated material, free from roots, muck, organic material, rocks larger than 4 inches in size, building debris or other deleterious materials.
- D. Fill Under Landscaped Areas: Free from alkali, salt, and petroleum products. Use subsoil excavated from site only if conforming to specified requirements.

PART 3 - EXECUTION

3.01 PREPARATION AND LAYOUT

- A. Establish extent of excavation by area and elevation. Designate and identify datum elevation.
- B. Set required lines and levels.
- C. Maintain bench marks, monuments and other reference points.
- D. Precut pavement and concrete.
- E. Notify Sunshine 811 and obtain a utility location and mark out, as required by law and the drawings.

3.02 UTILITIES

- A. Before starting excavation, field establish the location and extent of underground utilities occurring in the work area and have utilities marked in the field.
- B. Notify the Engineer if utility lines which are in the way of excavation are uncovered.
- C. Protect and support active utility services uncovered by excavation.
- D. Remove abandoned utility service lines from areas of excavation. Cap, plug or seal such lines and identify at grade.
- E. Accurately locate (horizontally and vertically) and record abandoned and active utility lines and services on project record documents. Document clearance between these features and the installed force main.
- F. Minor changes in alignment and grade to avoid existing utilities shall not be considered additional work.

3.03 TRENCHING

- A. Ensure trenching does not interfere with normal 45-degree bearing splay of any foundation.
- B. Excavate in accordance with lines and grades.

TRENCHING, EXCAVATION, BACKFILLING AND COMPACTING

- C. Cut trenches sufficiently wide to enable proper installation of services and to allow for inspection. Trim and shape trench bottom and leave free of irregularities, lumps and projections. Trenching shall comply with Florida and Federal safety requirements.
- C. Do not disturb soil within branch spread of existing trees or shrubs that are to remain. If it is necessary to excavate through roots, perform work by hand and cut roots with a sharp axe.
- D. When complete, request the Engineer to inspect excavations. Correct unauthorized excavation as directed, at no cost to Owner.
- E. Remove excess or unsuitable excavated sub-soil from site.
- F. Prevent erosion and washing of excavated materials. Materials to be used as backfill shall be stored as to prevent blocking public or private access, and traffic or where it will become a nuisance to the public or the owner or will interfere with line of sight. The site shall be kept orderly and as clean as possible.
- G. Saw cut asphalt and concrete before excavation of pavements.
- H. Support existing utilities as needed to complete the work.
- I. Where the trench bottom is unstable due to muck or other conditions, the deleterious material shall be removed to a minimum depth of 2 feet and replaced in select fill compacted as per Section 3.05 of this specification. The Engineer may direct removal to depths greater than 2 feet. When excavation of rock is encountered, all rock shall be removed to a depth of at least 6-inches below the pipe and replaced with bedding material.

3.04 DEWATERING

- A. Keep trenches dry. Provide necessary equipment including pumps, piping and temporary drains.
- B. Do not discharge drainage water lines into storm sewers without approval. Ensure water discharge does not contain silt held in suspension, provide turbidity control.
- C. Direct surface drainage away from excavated areas.
- D. Control the grading in and adjacent to excavations to prevent water running into excavated areas or onto adjacent properties or public thoroughfares.
- E. Furnish and operate suitable pumps on a 24-hour basis to keep excavations free of water until piping has been placed and backfilling has been completed.
- F. No water shall be allowed to rise over masonry or mortar until the concrete or mortar has set at least 24 hours.

TRENCHING, EXCAVATION, BACKFILLING AND COMPACTING

- G. Contractor shall obtain a Dewatering Permit from SFWMD and BCEPGMD, if necessary.

3.05 BACKFILLING

- A. Do not start backfilling until piping has been inspected.
- B. Ensure trenches are free of building debris, muck, wood, rocks over 2-inches in diameter and water.
- C. Backfill systematically and as early as possible to allow maximum time for natural settlement and compaction.
- D. After backfill has reached a point one foot above the top of the pipe with select granular material, a variation in the procedure as to manner of placing and amount of compaction of fill will be allowed, depending upon the location of the work and danger from subsequent settlement, as follows:
 - 1. For backfilling in unimproved areas (along utility easements and in parkway strip beyond the edge of driveways and graveled parking areas): From an elevation of one foot above top of pipe to the surface of the ground, backfill may be deposited by backhoe, bulldozer or other suitable equipment. Depositing in 12-inch layers and compacting to a minimum of 100% maximum density in accordance with AASHTO T-180. All surplus excavated materials shall be disposed of by the Contractor at his expense unless otherwise directed by the Engineer. Compaction testing shall be performed as required on the drawings.
 - 2. For backfilling beneath driveways and parking areas, alleys, and streets where non-rigid type surfacing is to be replaced: This shall also include dirt, gravel or cinder driveways and alleys.
 - a. The backfill material shall be carefully deposited in uniform layers not to exceed 6 inches in thickness, and each layer shall be compacted to 100% in accordance with AASHTO T-180 with manually-operated machine tampers.
 - b. If, in the opinion of the Engineer, the excavated material can be satisfactorily compacted by water jetting, this method may be used. The jetting operation shall be approved by the Engineer.
 - c. In lieu of the foregoing compaction method, the backfill material and procedure used may be that as specified under method 3, below.
 - 3. For backfilling across and beneath driveways, sidewalks, parking areas or streets where a rigid-type paving is to be replaced (concrete and asphaltic concrete and brick surfaces):
 - a. All backfill material shall be approved granular material of high weight and density. The material shall be carefully deposited in uniform layers not to exceed 6 inches thick (loose measure),

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and each layer shall be compacted by ramming or tamping with tools approved by the Engineer in a manner that does not disturb the pipe. Where necessary, granular base material of the type and thickness specified shall be used for the last layer prior to surfacing.

- b. In lieu of ramming or tamping in 6-inch layers, the approved granular backfill may be placed in one operation and water-jetted. The jetting operation shall be as approved by the Engineer.
- c. Backfill materials shall be compacted to a minimum of 100% of maximum density in accordance with AASHTO T-180.
- d. Compaction testing shall be performed as required on the drawings.

3.06 MEASUREMENT AND PAYMENT

- A. No separate compensation shall be made for excavation, bedding, disposal of excess materials and backfill. Work shall be paid for as part of the lump sum price for each pump station.
- B. OSHA Trench Safety Compliance: The lump sum price for each pump station installation shall be used to pay for use of trench box or other approved means to comply with CS/HB 3183, Florida Trench Safety Act and OSHA Trench Safety Standards, to protect works where the excavation exceeds 5 feet in depth.

END OF SECTION

SECTION 02260
FINISH GRADING

PART 1 - GENERAL

1.01 SCOPE

The Contractor shall, under this Section:

- A. Supply, place, roll, and finish grade all materials and topsoil prior to landscaping work.
- B. Restore surface drainage and swales to the original design.

1.02 SUBMITTALS

Composition of the top soil to be used and its source, type of replacement sod and its source.

1.03 QUALITY CONTROL

The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement, utility lines, and sprinkler system. Correct damage at no cost to the Owner.

1.04 MEASUREMENT AND PAYMENT

No separate payment shall be made for landscape restoration.

PART 2 - MATERIALS

2.01 TOPSOIL

Topsoil shall be friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4% and a maximum of 25% organic matter.

PART 3 - EXECUTION**3.01 SUB-SOIL PREPARATION**

- A. Rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, etc., in excess of 2 inches in size. Remove sub-soil which has been contaminated with petroleum products.
- B. Cut out areas, to sub-grade elevation, which are to receive stabilizing base for paving and sidewalks.
- C. Bring sub-soil to required levels, profiles and contours. Make changes in grade gradual. Blend slopes in to level areas.
- D. Slope grade away from building minimum 4 inches in 10 feet (unless indicated otherwise on Drawings).

3.02 PLACING TOPSOIL

- A. Place topsoil in area where seeding, sodding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations:
 - 1. 4 ½-inches for sodded areas.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of sub-grades.
- D. Remove stones, roots, grass, weeds, debris and other foreign material while spreading.
- E. Manually spread topsoil around trees, plants, buildings and other structures to prevent damage which may be caused by grading equipment.
- F. Lightly compact placed topsoil.

3.03 SURPLUS MATERIAL

- A. Remove surplus sub-soil and topsoil from site.
- B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 02430**SODDING****PART 1 – GENERAL****1.01 SCOPE**

- A. Provide all labor, materials and equipment necessary for complete sodding of areas affected by construction. This shall include, but not be limited to: liming, fertilizing, sodding, necessary barriers, tests and all incidentals to make the work complete.

1.02 WORK INCLUDED

- A. Testing of topsoil.
- B. Raking and leveling topsoil as required for sodding.
- C. Liming and fertilizing of topsoil.
- D. Laying and rolling of sod.
- E. Maintaining sod.

1.03 SUBMITTALS

- A. Submit product source and information sheets in accordance with Section 01300, "Submittals".

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Fertilizer
 - 1. Fertilizer shall be commercial fertilizer, as manufactured by International Chemical Company or equal.
 - 2. Said fertilizer shall have a 10-20-6 N.P.K. content and contain a minimum of 60% of organic material.
 - 3. It shall be delivered at the site in the original sealed containers.
- B. Sod
 - 1. Sod from right-of-way swales within the work area shall be Bahia sod or replaced in-kind, whichever is finer quality.
 - 2. Sod shall be first quality Bahia sod of firm texture having a compacted growth and good root development.

3. Sod shall be absolutely true to varietal type, live, fresh and free from weeds or objectionable vegetation, fungus, insects and disease of any kind. Sod shall be kept moist from the time it is field cut until it is laid at the proposed site.
4. The sod shall be as grown by a certified turf nursery and CONTRACTOR shall inform ENGINEER as to the source of the sod to be utilized prior to ordering and delivery of sod.
5. Sod shall be furnished and installed in rectangular sod strips measuring 12 to 16-inches in width of standard lengths of not less than 2 feet and delivered on pallets.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. These areas shall be fine graded to achieve the finished subgrade after compaction which shall be obtained by rolling, dragging or by an approved method which obtains an equivalent compaction to that produced by a hand roller weighing from 75 to 100 pounds per foot of width. All depressions caused by settlement or rolling shall be filled with additional existing or furnished topsoil and regraded and prepared as specified above until it presents a reasonably smooth and even finish at the required sod sub-grade.
- B. All sod furnished shall be living sod containing at least 70% of thickly matter grasses as specified and free from noxious weeds. All sod shall be certified free of fire ants.
- C. No broken pads or torn or uneven ends will be accepted. Standard size sections of sod shall be strong enough to support own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10% of the section. Sod shall not be harvested when its moisture content (excessively wet or dry) may adversely affect its survival.
- D. Sod shall be harvested, delivered, and installed within a period of 24 hours. Sod not installed within this time period shall be subject to inspection and rejection by ENGINEER, and shall be removed from the site and a fresh sod supply shall be furnished at no extra cost to CITY.
- E. The topsoil shall not be moist at time of installation; however, it shall contain sufficient moisture so as not be powdery or dusty, both as determined by the supplier's representative.
- F. The overlapping of existing lawn with new sod along limit of work lines will not be permitted. Sod shall be laid in strips, edge to edge, with the lateral joints staggered. All minor or unavoidable openings in the sod shall be closed with sod plugs or with topsoil, as directed by ENGINEER. However, sod laid with joints determined to be too large shall be lifted and re-laid as specified herein at no extra cost to CITY.
- G. Immediately after the sod is laid, the sod shall be watered thoroughly by hand or mechanical sprinkling until the sod and at least 2-inch of the top soil bed have been thoroughly moistened.
- H. CONTRACTOR shall be responsible to furnish his own supply of water to the site at no extra cost. If possible, CITY shall furnish CONTRACTOR, upon request, with a source

and supply of water. CONTRACTOR shall apply for temporary meter and pay CITY for water used at current utility billing rates. However, if CITY's water supply is not available or not functioning, CONTRACTOR shall be responsible to furnish adequate supplies at his own cost. All work injured or damaged due to the lack of, or the use of too much water, shall be CONTRACTOR's responsibility to correct.

3.02 MAINTENANCE

- A. Maintain the entire sodded areas at least a 30-day period or until final acceptance at the completion of the Contract, whichever is longer. Maintenance shall include watering as specified, weeding and removal of stones which may appear. All bare or dead spots which become apparent shall be properly prepared, limed and fertilized, and resodded at CONTRACTOR's expense as many times as necessary to secure a good growth. In the event that the sod installation is not accepted by ENGINEER, the entire area shall be maintained and cut by CONTRACTOR until final acceptance of the sod installation.
- B. Take whatever measures are necessary to protect the sod while it is developing. These measures shall include furnishing of warning signs, barriers, or any other necessary measures of protection.

END OF SECTION

SECTION 02577

SURFACE RESTORATION

PART 1 - GENERAL

1.01 SCOPE

The work shall include completing of surface restoration as specified herein. This work includes protection and/or removal and replacement of roadway and driveway surface and pavement, striping, signs, concrete curb, gutter, driveway aprons and/or sidewalk, and landscaping restoration of features damaged by the Work. Surface restoration shall follow completion of backfilling within 7 calendar days. Restoration shall conform to the conditions of the permits and City of Hallandale Beach.

As used herein, "driveway" shall mean concrete driveway aprons and asphalt or concrete driveways and "curb and gutter" shall mean free standing concrete curb, gutter, or combination curb and gutter.

In order to protect himself from being held liable for any existing damage to roadway, concrete and asphalt driveways, sidewalks or curb and gutter, landscaping, etc., the Contractor is advised to notify in writing the authority having jurisdiction over the street where such damage exists prior to proceeding with any work in the vicinity and to document the damaged areas in the prework video tape record. A copy of all such notices shall be forwarded to the Engineer.

1.02 REFERENCES

Work and materials shall conform to the applicable requirements from the following references:

- A. Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", Latest Edition.
 - 1. FDOT Section 300 - Prime and Base Courses
 - 2. FDOT Section 320 - Hot Mix Asphalts - Plant Methods and Equipment
 - 3. FDOT Section 331 - Type S Asphaltic Concrete
 - 4. FDOT Section 911-3 - Composition of Limerock Material for Limerock Base and Limerock Stabilized Base
 - 5. FDOT Section 346 - Portland Cement Concrete
 - 6. FDOT Section 520 - Concrete Gutter, Curb Elements and Traffic Separator
 - 7. FDOT Section 522 - Concrete Sidewalk and Driveway
 - 8. FDOT Section 570 - Performance Turf
 - 9. FDOT Section 580 - Landscaping
 - 10. FDOT Section 711 - Thermoplastic Pavement Markings
 - 11. FDOT Section 981 - Turf Materials

- B. American Association of State Highway and Transportation Officials (AASHTO).
 - 1. AASHTO T-180 - Test for Moisture-Density Relations of Soils Using a 10 lb. Rammer and an 18-Inch Drop Modified Protector Test.
- C. Section 02221, Trenching, Excavation, Backfilling and Compaction
- D. Minimum Standards, City of Hallandale Beach

PART 2 –MATERIALS

2.01 ROADWAY MATERIALS

A. SUBGRADE

Subgrade shall be compacted in accordance with the requirements in Section 02221. The top 12 inches of the subgrade shall be compacted to a minimum of 100 percent of the maximum density (AASHTO T-180). All subgrade material shall have an L.B.R. of 40, minimum.

B. BASE COURSE

The base course shall consist of Grade No. 2 limerock conforming to Section 911-3 of FDOT "Standard Specifications for Road and Bridge Construction". Base course material for paved areas over trenches shall be twice the minimum thickness required: for streets – 2 times 8 inches = 16 inches; for driveways – 2 times 6 inches = 12 inches, as per the above referenced FDOT specification. Base courses shall be compacted and tested in lifts not to exceed 6 inches in thickness and shall be not less than 100 percent of maximum density as per AASHTO T-180.

C. PRIMER

Primer shall be hot bituminous material in accordance with Section 300-2 of FDOT Standard Specifications, Latest Edition. Alternate primers shall be acceptable only with prior approval of the City.

D. TACK COAT

Tack coat shall be in accordance with Section 300-2.3 of FDOT Standard Specifications, Latest Edition.

E. SURFACE COURSE

The surface course shall be a minimum 1 inch of SP-9.5 asphaltic concrete in accordance with all applicable requirements of Sections 320 and 332 of FDOT "Standard Specifications for Road and Bridge Construction," Latest Edition.

2.02 GRASS, SHRUBBERY, TREES, ETC.

All planted vegetation which is removed, damaged or destroyed by project construction shall be replaced by like kind and in the same manner. Grass restoration shall be done with sod. See also Paragraph 3.05, below.

2.03 CONCRETE AND CONCRETE FEATURES

Concrete and precast and cast in place concrete features shall conform to the applicable provisions specified in Paragraph 4.03 and Division 3 of these Contract Documents, the drawings and the standard specifications of Broward County Engineering and FDOT, as applicable.

PART 3 - EXECUTION OF WORK

3.01 PUBLIC PAVEMENT

- A. Base Course: The base course shall be constructed to the details shown on the Plans at the Engineer's direction. Any variance from the Plan details shall not be allowed without the prior written consent of the Engineer.

The limerock shall be transported to the point where it is to be used, over rock previously placed, if practicable, and dumped on the end of the preceding spread. In no case shall rock be dumped directly on the subgrade. The limerock shall be spread uniformly in lifts not exceeding 6 inches, maximum, compacted and tested with equipment approved by the Engineer. All segregated areas of fine or coarse rock shall be removed and replaced with well-graded rock.

The equipment to be used shall include a self-propelled blade grader weighing not less than 3 tons, with wheel base not less than 15 feet and blade length not less than 10 feet; scarifiers shall have teeth spaced not to exceed 4-½ inches apart; at least one three-wheel roller weighing not less than 10 tons; provision for furnishing water at the site of work by tank truck or hose at a rate not less than 50 gallons per minute. Alternate equipment approved by the Engineer may be used where narrow widths preclude use of larger equipment.

After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross section after compaction. The full depth of base shall be compacted to an average density of 100% of maximum density as determined by AASHTO T-180 (Modified Proctor). The minimum density acceptable at any location shall be 100%.

The finished surface of rock base shall be true to the required cross section throughout. Any irregularities in the surface greater than ¼-inch, as determined by placing a 10 foot straightedge parallel or perpendicular with the centerline, shall be corrected by scarifying to a depth of 3-inches, removing or adding rock

as may be required and again watering, rolling and compacting the scarified area. Any area of new pavement which experiences ponding one hour after

cessation of rainfall that exceeds one square yard in area or ½ inch in depth shall be corrected at the contractor's sole expense.

Compaction test reports of subgrade or base rock shall be submitted for approval to the Engineer prior to installation of final asphalt wearing surface.

- B. Priming: Before any bituminous material is applied, all loose material, dust, dirt and other foreign material which might prevent proper bond shall be removed from the base for the full width of application. The surface to be primed shall have the glazed finish removed by "hard-planing" prior to the application.

The bituminous material to be used shall be RC-70 or other material approved by the Engineer. The temperature of the material shall be between 100°F and 150°F; the exact temperature being such as will insure uniform distribution.

The surface to be primed shall be clean and dry. No bituminous material shall be applied when the temperature of the air is less than 60°F in the shade, or when, in the opinion of the Engineer, the weather conditions or the condition of the existing surface is unsuitable. The rate of application shall not be less than 0.10 gal. per square yard, and shall be sufficient to coat the surface thoroughly and uniformly without having any excess to puddle or flow off the base. Application shall be by self-propelled pressure distributor, operating under a pressure not less than 20 lbs. per square inch.

The prime shall be allowed to stand, without sanding, for a period of at least 4 hours. A uniform application of clean sand shall be applied prior to opening the primed base to traffic, in which case the sand shall be rolled with a traffic roller in conjunction with traffic to cure the prime coat. The sand to be used shall be free of silt, rock, particles, sticks, trash, vegetation, or other deleterious material.

- C. Asphaltic Surface Course: Saw cut and square edges of existing asphalt. After the prime coat has had adequate time to cure, and prior to the installation of a final surface course, the Contractor shall clean the prepared base of all loose sand and other deleterious materials. If, in the opinion of the Engineer, the prepared surface is unsuitable to receive the final surface course without tacking, a tack coat shall be applied in accordance with FDOT Section 300-7. Once the surface has been properly prepared, the Contractor shall install a minimum of 1 inch of Type SP Asphaltic Concrete in accordance with the details shown on the Plans. Said Type SP Asphaltic Concrete shall conform to all of the applicable requirements of Sections 320 and 332 of the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction," Latest Edition.

3.02 STATE OR COUNTY OWNED PUBLIC PAVEMENT

Restoration within all State or County owned and maintained rights-of-way shall be made in strict compliance with the construction permit. Where the trench is parallel in a lane of traffic the entire effected lane shall be resurfaced.

All work shall be subject to final inspection and approval of the Florida Department of Transportation or the County and shall be completed as expeditiously as possible.

3.03 DRIVEWAYS, PARKING LOTS AND MISCELLANEOUS PAVEMENT

Driveways, parking lots and miscellaneous pavement shall be replaced in kind and restored to a condition equal to or better than that which existed previously. The pavement shall be restored in accordance with the specifications in Section 3.01, except that the minimum thickness of the base course shall be 6 inches (12 inches over the trench area). *The Contractor is to restore all improvements damaged by his operations at no extra cost whether shown or not shown by the Plans.*

3.04 UNIMPROVED AREAS

Unimproved areas shall be restored to a condition equal to that which existed prior to this construction including grading elevations and ground cover.

3.05 RIGHT-OF-WAYS AND/OR EASEMENTS IN GRASS AND SHRUBBERY PLOTS (SWALES)

Rights-of-way and/or easements in grass and shrubbery plots (swales) shall be restored to the condition existing prior to making the excavation. All shrubbery, ornamental trees and other plantings shall be fully protected. If it is found necessary to remove any grass, shrubbery or plants to accomplish the work, they shall be satisfactorily replaced before the work will be accepted or paid for. Grass shall be replaced with sod.

The area to be sodded shall be leveled and prepared to provide a smooth, even surface. All stones, roots and other debris over 2" in largest dimension shall be removed. The surface shall be loosened to provide a proper bed of sand on black dirt. No compaction of swale areas will be allowed. Thickness of sod of two (2) inches should be taken into consideration when preparing swales.

Sod must be placed within 72 hours from excavating and preparing swale. In the event rain erodes surface of swales, the area must be prepared again to provide a smooth, even surface and surface shall be loosened again to provide a proper bed of sand and black dirt at no additional cost to the City.

Sod material shall be strongly rooted St. Augustine Floratan grass of good quality and free from weeds. It shall be alive and viable, not dormant. Sod shall be placed within 24 hours from time of striping and shall be placed with tightly fitting joints. After laying, sod shall be covered with sufficient top dressing to fill voids remaining and thoroughly watered to wash top dressing into sodded surface. Unmixed sand shall be used for top dressing.

Finished elevation of new sod along edges of road and driveway aprons must be such to allow rainwater to flow freely to swale areas. Finished elevation of new sod

along edges of existing sod must match the elevation of the existing sod. Completed sod surface shall be even and firm and shall be flush with top of abutting walks, paving, concrete borders, catch basins, and the like.

The contractor shall water immediately after placing and at least four times per week for fourteen (14) days, to insure proper growth. All sod material that is dead or in poor condition when the project is inspected for acceptance will be replaced at the contractor's expense.

The contractor shall be responsible to locate and safeguard any irrigation lines within the swale area and repair of any irrigation line damaged by contractor is the contractor's responsibility.

The contractor shall be responsible for safeguarding the asphalt or concrete along the edges of the road and driveway aprons during the regrading and preparation of the swale. Any damage to the road or driveway aprons must be repaired at the contractor's expense.

3.06 CLEANUP

Cleanup is an essential part of the project and this portion of the work will not be considered complete. *Final payment made shall not be granted until the cleanup is complete to the satisfaction of the Engineer.*

3.07 STRIPING AND SIGNS

Pavement striping, traffic control devices, and signs shall be restored in accordance with Broward County Minimum Standards and as follows:.

A. Pavement Stripes and Markings

For temporary pavement stripes and directional arrows, apply paint materials listed on the Qualified Products List, according to Section 710, FDOT SSR&BC and meet the material requirements of Sections 971-1 and 971-19.

For permanent pavement stripes and directional arrows, use thermoplastic materials listed on the Qualified Products List according to Section 711, FDOT SSR&BC and meet the material requirements of Sections 971-1 and 971-17.

Parking pavement stripes shall be paint traffic stripes meeting the requirements of Section 710 of the FDOT SSR&BC.

Place raised retro-reflective pavement markers: amber on yellow line and traffic separation; colorless/red at gore and on white line of road sharp curves. Use RPM materials and bituminous adhesives listed on the Qualified Products list, according to Section 706, FDOT SSR&BC.

Each job site must be left clean and restored to existing or better condition.

B. Signs

Furnish and erect roadway signs, with supporting posts at the locations shown in the plans, in accordance with manual on Uniform Traffic Control Devices, latest edition and Standard Highway Signs Manual published by the U.S. Department of Transportation, 2000 and Section 700 of FDOT SSR&BC. Provide posts for all frangible sign assemblies consisting of galvanized steel U-Channel as listed on the Qualified Products List. Reflectorize all signs.

All existing signs and supports that will be replaced shall be removed and delivered to the City of Hallandale Beach Public Works Department at 630 NW 2nd Street. No additional compensation will be granted for removal and delivery to the City.

PART 4 - CONCRETE DRIVEWAY APRONS, SIDEWALKS AND/OR CURB AND/OR CURB AND GUTTER RESTORATION

4.01 SCOPE

The work to be performed under this item shall include replacement of concrete features which have been removed and/or damaged during the course of construction of the work performed under this Contract. The sidewalk shall be replaced to the same dimensions as the original feature.

4.02 REFERENCES

All sidewalks constructed shall meet the requirements of the Florida Accessibility Code for Building Construction, latest edition, and to Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, Section 520 and 522 "Concrete Gutter, Curb Elements and Traffic Separator" and "Concrete Sidewalk & Driveways".

4.03 ACCEPTABLE MATERIALS

The concrete used shall be Class I (2,500 psi in 28 days) in accordance with FDOT Standard Specification Section 347. Concrete in Hallandale Beach right-of-way shall be 3,000 psi in 28 days.

4.04 EXECUTION OF WORK

A. Concrete Sidewalk

All material, labor, forms, tools and equipment for restoration of the sidewalk shall be supplied by the Contractor. All disturbed sidewalk shall be replaced with 4-inch thick to the widths required. The sidewalk finish shall match as near as possible the original finish. Broken or cracked sidewalk shall be removed

and disposed of as directed by the Engineer/*Program Manager*. Subgrade shall be fully compacted, scored joints shall be placed at a maximum of 5 foot intervals, 3/4" expansion joints shall be placed at changes in direction and at maximum 20 foot intervals.

B. Concrete Driveways

Concrete driveways, and sidewalks crossing driveways, shall be restored in full sections or blocks rather than trench width plus two feet (shoulders), if the original construction was divided into such sections or blocks. The existing driveway (or sidewalk) shall be cut with an abrasive disc saw to trim the edges to straight and true lines, with edges parallel and rectangular in plan. The interior concrete shall then be broken up and removed from the site.

Driveways, and sidewalk crossing driveways, shall be replaced with a concrete slab having a minimum thickness of 6 inches. Steel reinforcement is not required unless the existing driveway is so reinforced, in which case the replaced driveway shall also be reinforced to match the existing. Reinforcing for sidewalk is specified above.

Such forms as are necessary shall be set up and the subgrade regraded for a slab 6 inches thick. The subgrade shall be thoroughly compacted and wet down prior to placing the concrete. The surface shall be given a surface and edging to match, as nearly as possible, that of the existing driveway (or sidewalk). The finish and edging shall be obtained through the use of screeds, trowels, edgers and any other tools normally required by the trade in performing this kind of work.

All forms for driveways (or sidewalks) including those for expansion joints, shall be metal and shall be clean and well-oiled prior to placing concrete. The forms shall be set in place far enough in advance of concrete placing for the Engineer to check line and grade. Abrupt changes in line and grade will not be permitted, and forms shall be set to insure smooth curvature and alignment both vertically and horizontally. Forms shall be left in place for a minimum of 24 hours after concrete has been placed.

Replacement driveways (and sidewalks) shall match the elevation and alignment of existing driveways (and sidewalk) wherever a connection is made.

Concrete power or special concrete treatment shall be replaced to match the existing driveway. No additional compensation shall be paid for this work.

C. Concrete Curbs and Gutters

Curb and gutter shall be restored in lengths equal to trench width plus 2 feet (shoulders), or 10 feet, whichever is greater, unless otherwise shown on the drawings, permitted or ordered by the Engineer.

Removal of existing curb and gutter, installation of forms, preparation of subgrade, and the final finish shall be performed as specified hereinabove for driveways. The shape and final finish shall match that of the existing curb and gutter.

PART 5 – SWALE AND SURFACE DRAINAGE RESTORATION

5.01 GENERAL (See Section 3.05)

Where the Contractor is to construct a new main in a swale area, the swale shall be replaced to its original design including elevations, grades, and grass restoration with sod. Surfaces shall be restored to maintain existing surface drainage.

END OF SECTION

